

18. Evaluate the effectiveness of resolution and natural deduction in solving different types of logical problems in AI.
19. Elucidate the significance of putting machine learning into context and its impact on real-world applications.
20. Discuss the challenges and considerations involved in implementing machine learning solutions in real-world scenarios.

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**23PECS24A — ARTIFICIAL
INTELLIGENCE AND MACHINE
LEARNING**

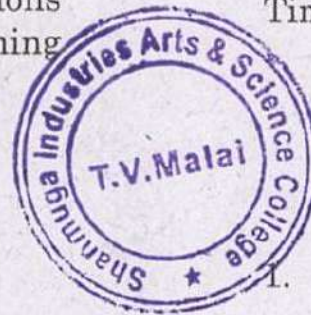
Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. State the importance of criteria for success in AI.
2. Give a brief note on state space search.
3. Define heuristic search.
4. State the significance of knowledge representation in AI.
5. Give a short note on the importance of predicate logic in AI.
6. What is matching-control knowledge?
7. What is the fundamental concept of machine learning?



8. Define big data and its significance in modern data-driven approaches.
9. How does machine learning impact various applications?
10. List the steps in machine learning cycle.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Describe any two AI techniques and explain their role in addressing AI problems.

Or

- (b) Explain the concept of problem spaces in AI with example.

12. (a) Explain the concept of problem reduction in heuristic search.

Or

- (b) Illustrate the means-end analysis.

13. (a) Describe computable functions and predicates with suitable examples.

Or

- (b) Explain the representation of instance and its relationships in predicate logic.

14. (a) Compare and contrast different approaches to machine learning, highlighting their strengths and weaknesses.

Or

- (b) Explain the significance of statistics in machine learning.

15. (a) Illustrate the techniques used in data preparation and list out the common challenges faced during the said process.

Or

- (b) Examine the quality and quantity of data affect the outcomes of machine learning algorithms.



SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the structure and components of production systems, and discuss how they facilitate problem-solving processes.
17. Illustrate the different types of representations, such as logical, semantic, and distributed representations, and their applications in AI systems.